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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,854	07/31/2001	Kunihiro Tsubosaki	DAIN: 644	2156

7590

07/25/2002

PARKHURST & WENDEL, L.L.P.
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EXAMINER

ERDEM, FAZLI

ART UNIT PAPER NUMBER

2826

DATE MAILED: 07/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/917,854	TSUBOSAKI, KUNIHIRO	
	Examiner	Art Unit	
	Fazli Erdem	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Chakravorty (6,181,569).

Regarding Claim 1, Chakravorty shows a low cost chip size package and method of fabricating the same in which the Figs. 6 and 8 show a semiconductor chip 302 having a contact pad 304, a dielectric layer 305 formed on the surface of the semiconductor chip, metal layers 307 and 310 formed on the insulating layer, and the bumps 311 connected to the pad through metal layers.

Regarding Claim 2, 311 are the bumps

Regarding Claims 3 and 4, Chakrovarty teach the usage of cured conductive bumps in relation to bumps 311.

Regarding Claim 6, Figs. 6 and 8 show two different insulating/dielectric layers.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chakravorty (6,350,668) in view of Inaba et al. (6,387,734).

Regarding Claim 5, Charavorty shows all the claimed subject matter except it fails to show a solder resist layer. However, Inaba et al. disclose a semiconductor package, semiconductor device, electronic device and the production method for semiconductor package where the usage of solder resist is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include a solder resist layer in Chakravorty as taught by Inaba et al. in order to provide a better electrical performance.

3. Claims 7-15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inaba et al. (66,387,734) in view of Chakravorty (6,350,668).

Regarding Claim 7, Inaba et al. show all the claimed subject matter of method of making semiconductor device except it fails to show the forming of individual semiconductor chips step. However, Chakravorty et al. show the method of forming individual chips out of the wafer step.

Regarding Claim 8, Inaba et al. show the solder resist formation.

Regarding Claim 9, Chakravorty shows the different bonding methods including wire bonding.

Regarding Claim 10, Chakravorty shows the subject matter related to cured conductive paste.

Regarding Claim 11, both Inaba et al. and Chakravorty show the metal deposition method of sputtering.

Regarding Claims 12 and 13, both Inaba et al. and Chakravorty show the electroless and electrolytic plating methods.

Regarding Claims 14 and 15 Inaba et al. show the subject matter related to roughness and the photosensitive resin.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to form individual semiconductor chips from wafer in Inaba et al. as taught by Chakravorty in order to have use individual semiconductor chips from a wafer.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (703) 305-3868. The examiner can normally be reached on M - F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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FE

July 22, 2002

A handwritten signature in black ink, appearing to be 'Nathan J. Flynn', written in a cursive style.

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800